

**REMARKS**

This Preliminary Amendment is filed in connection with a Request for Continued Examination and in response to both the Advisory Action mailed Aug. 8<sup>th</sup>, 2005 and the Final Office Action mailed June 21<sup>st</sup>, 2005. All objections and rejections are respectfully traversed.

Claims 1-33 are now pending in the case.

New claims 21-33 have been added.

No claims have been amended.

The Applicant respectfully requests an interview with the Examiner to advance the prosecution of this case.

***Brief Response to Advisory Action***

In response to the Advisory Action, the Applicant respectfully urges that the Examiner has misinterpreted Boucher et al. and that Boucher et al. does not disclose the subject matter the Examiner has attributed to the reference.

In the Advisory Action, the Examiner cites paragraphs 0057-0058, 0065 and 0073 apparently as disclosing “uniformly distributing data over a plurality of links.” Yet paragraphs 0057-0058 and 0065 contain no mention of multiple network links. Instead they discuss a “slow path” and a “fast path” that, as explained further below, are not network links at all, but rather techniques (i.e. computer logic or software) for processing packet headers. Paragraph 0073 does discuss multiple network links, but there is absolutely no suggestion of “uniformly distributing data” over these links. Indeed, while the

Examiner cited to the phrase “transport data along a number of different conduits” in paragraph 0073, such statement has no relation to uniformly distributing data. The sentence reads in full “The INIC 200 is connected with four network lines 210, 240, 242, and 244, which may transport data along a number of different conduits, *such as twisted pair, coaxial cable or optical fiber, each connection providing a media independent interface (INIC)*” (emphasis added). Clearly, this passage is concerned with choice of media type, and not load balancing across multiple links. Accordingly, the paragraphs pointed to by the Examiner in no way anticipate the Applicant’s claims.

Also, in the Advisory Action the Examiner cites to paragraph 0109, apparently to show Applicant’s use of Internet Protocol Identifier (IP ID) as a basis for uniformly distributing data over a plurality of links. Yet, paragraph 0109 simply discusses use of the IP ID field to reassemble IP fragments, as discussed in more detail below. Such use is the IP ID field’s traditional use, and is a well known part of the IP Protocol. Paragraph 0109, and the rest of Boucher et al., lacks any disclosure of using the IP ID field *for a new purpose*, such as load balancing by uniformly distributing data over a plurality of links. Accordingly, the paragraph pointed to by the Examiner in no way anticipates the Applicant’s claims.

#### ***Claim Rejections - 35 U.S.C. §102***

At paragraphs 6-11 of the Final Office Action, claims 1, 9-11, and 16 were rejected under 35 U.S.C. §102(e) as anticipated by Boucher et al., U.S. Publication No. 2001/0027496, filed on March 12<sup>th</sup>, 2001 (hereinafter Boucher).

The Applicant notes Boucher was filed on March 12<sup>th</sup>, 2001, approximately 3 months before the Applicant's filing date. While the Applicant does not admit Boucher has actual prior art status, even assuming arguendo Boucher is prior art, the reference would not anticipate the Applicant's claims.

The Applicant's claim 1, representative in part of the other rejected claims, sets forth:

1. A method for *uniformly distributing data transmitted by a server over a plurality of underlying links* of an aggregate within a computer network, the method comprising the steps of:  
defining a unit of data as a datagram;  
apportioning each datagram into at least one fragment at the server;  
*associating each fragment to an underlying link of the aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram* and a number of active links of the aggregate; and  
*transmitting the fragment over its associated underlying link* from the server to the computer network.

Boucher discloses a technique for processing network protocols that "collapses the layers of a connection-based, layered architecture such as TCP/IP into a single wide layer." *See* paragraph 0012. A "fast path" (*see* Fig 2, item 58) implementing this new one-layer protocol stack is provided. *See* paragraphs 0013, 0037, and 0052. The "fast path" employs a specialized microprocessor that, "in effect... replaces the states that are traditionally found in several layers of a conventional network stack with a single state machine encompassing all those layers." *See* paragraph 0013. A conventional "slow path" processing technique is also provided, that processes TCP/IP protocol stacks in software in the conventional manner, for frames that are not compatible with the "fast-path" technique. *See* paragraphs 0041 and 0051-0052.

In a largely unrelated discussion, the well known IP ID field of a datagram is discussed in relation to its use in reassembling IP fragments. *See* paragraph 0109. Boucher states in paragraph 0109 (emphasis added):

When processing TCP/IP data, there are actually two contexts that must be maintained. *The first context is required to reassemble IP fragments.* It holds information about the status of the IP reassembly as well as any checksum information being calculated across the IP datagram (UDP or TCP). *This context is identified by the IP\_ID of the datagram* as well as the source and destination IP addresses

Finally, Boucher discusses that his system may be incorporated into, for example, a 4-port network card as part of a practical implementation. *See* paragraphs 0072-0073.

The Applicant respectfully urges that Boucher is silent concerning the Applicant's claimed "*uniformly distributing data transmitted by a server over a plurality of underlying links*" by "*associating each fragment to an underlying link of the aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram*" and "*transmitting the fragment over its associated underlying link.*"

First, Boucher in no way discloses *uniformly distributing data* over a number of *underlying links* by *associating each fragment to an underlying link*. Boucher merely discusses computer logic or software for processing packet headers. Boucher discloses a "fast path", where a special microprocessor implements a one-layer protocol stack in hardware, and a "slow path" where a conventional TCP/IP multi-layer protocol stack is processed in software. Such processing "paths" are clearly not *underlying links* of a network. Thus, when Boucher's discloses choosing a "path" based on a network header

type, Boucher merely describes choosing a technique for processing packet headers based on header type.

Later in the disclosure, when Boucher does discuss actual network links, in relation to a 4-port INIC card shown in Fig. 13 (see paragraph 0073 “four network lines 210, 240, 242 and 244”), there is no suggestion of uniformly distributing data across these actual links. Apparently, Boucher intends each of these links to operate separately and independently, without any load balancing. Accordingly, Boucher can not possibly show the Applicant’s claimed *uniformly distributing data transmitted by a server over a plurality of underlying links by associating each fragment to an underlying link*.

Second, even assuming arguendo that Boucher in some way discloses uniformly distributed data, such distribution is certainly not based on the *Internet protocol (IP) identifier (ID) of each datagram*. The Applicant claims using *Internet protocol (IP) identifier (ID) of each datagram* as a basis for *associating each fragment to an underlying link*. Boucher merely discloses using IP ID to reassemble IP fragments of a datagram, to reform the datagram. See paragraph 0109. Indeed, Boucher states “[t]he first context is required to *reassemble IP fragments*... [t]his context is identified by the IP\_ID of the datagram...” (emphasis added).

The reassembly of fragments, as discussed by Boucher, is the traditional use of IP ID. The Applicant respectfully directs the Examiners attention to the textbook *TCP/IP Illustrated Volume 1*, by *W. Richard Stevens*, which describes the IP Identification field as a field specifically included for reassembling IP fragments (selected pages of this book are attached herewith).

In sharp contrast to Boucher and the traditional uses of the IP ID, the Applicant teaches using IP ID for a new purpose in a novel load balancing scheme. To that end, the

Applicant claims “*associating each fragment to an underlying link of the aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram.*” Boucher is completely silent concerning this new use of IP ID.

Accordingly, the Applicant respectfully urges that Boucher is legally insufficient to anticipate the present claims under 35 U.S.C. §102 because of the absence of the Applicant’s claimed novel “*uniformly distributing data transmitted by a server over a plurality of underlying links*” by “*associating each fragment to an underlying link of the aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram*” and “*transmitting the fragment over its associated underlying link.*”

***Claim Rejections - 35 U.S.C. §103***

At paragraphs 12-19 of the Final Office Action, the Examiner rejected claims 2, 3, 12, 13, 17, and 18 under 35 U.S.C. §103 as being unpatentable over Boucher, in view of Takagi, U.S. Publication No. 2001/0036154, filed on April 20, 2001(hereinafter Takagi).

The Applicant notes Takagi was filed on March 12<sup>th</sup>, 2001, approximately 2 months before the Applicant’s filing date. While the Applicant does not admit Takagi has actual prior art status, even assuming arguendo Takagi is prior art, the reference, in combination with Boucher, would not make obvious the Applicant’s claims as explained below.

At paragraphs 20-24 of the Final Office Action, the Examiner rejected claims 4, 14, and 19 under 35 U.S.C. §103 as being unpatentable over Boucher, in view of Narad et al., U.S. Patent No. 6,157,955 issued on Dec. 5<sup>th</sup>, 2000 (hereinafter Narad).

At paragraphs 25-30 of the Final Office Action, the Examiner rejected claims 5, 15, and 20 under 35 U.S.C. §103 as being unpatentable over Boucher, in view of Takagi, and in further view of Narad.

At paragraphs 31-37 of the Final Office Action, the Examiner rejected claims 6-8 under 35 U.S.C. §103 as being unpatentable over Boucher, in view of Takagi, and in further view of Narad, and in view of “Official Notice.”

The Applicant traverses the Examiner’s Official Notice.

The Applicant respectfully notes that claims 2-8, 12-15, and 17-20 are dependent claims that depend from independent claims which are believed to be in condition for allowance. Accordingly claims 2-8, 12-15, and 17-20 are believed to be in condition for allowance.

In the event that the Examiner deems personal contact desirable in disposition of this case, the Examiner is encouraged to call the undersigned attorney at (617) 951-3078.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable independent claims.

The Applicant respectfully solicits favorable action.

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Respectfully submitted,



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